Newton's Table of Leases. By PROFESSOR DE MORGAN.

BY this I do not mean what is usually called Newton's Table, but
something which has a better right. First, however, I will speak
of the table which, having Newton's certificate of accuracy, is
(or was) usually called by his name.

Mr. Edleston, Fellow of Trinity College, in making researches
for his biography* of Newton, found out the author of the old
table. His name was Mabbot, and he was manciple *(mancipium)*
or caterer of King's College. Mabbot published his table in 1686,
with the well-known attestation of Newton opposite to the title-
page. There seems to have been a special reason for procuring
this certificate. The church lessors were beginning to open their
eyes to the leniency of their terms, and Mabbot's tables were cer-
tainly intended both to urge them to raise their fines, &c., and to
point out the proper way of doing it. Subsequent editions of these
tables had attached to them the well-known letter which pointed
out the advantage under which the tenant was living. As it was
natural that the lessees should oppose the new scheme, and they
would probably question its accuracy, it seems that Newton was
applied to for the testimonial which, as is well known, he gave.

The dispute about the church leases continued till about 1731,
when it was at the fiercest, and then burnt out. See a list of

* Attached to his *Correspondence of Sir Isaac Newton and Professor Cotes;* London,
1850; 8vo. This biography is in the form of *annals,* and, besides containing a large
quantity of new and curious matter, is of exceedingly convenient reference.

some of the pamphlets which it produced in *Notes and Queries,* 2nd series, vol. iv., p. 361.

Mr. Edleston added to his mention of Mabbot the following note:—

"In the treasury of Trinity College, in a book labelled ' Notitia E,' which belonged to Humphrey Babington, as Bursar (1674-78), containing ' a true particular of the rents and leases belonging to Trin. Coll. 1674-5,' there is a table and an explanation of it in Newton's handwriting, of the fines to be paid for renewing any number of years lapsed in a lease for twenty years. It is entitled *Tabula redemptionalis ad reditus Collegij Ss. Trinitatis accommodata.* It is constructed on the hypothesis that a lease for twenty years is worth seven years' purchase, and [*i.e.*, whence it follows] that for the renewal of seven years lapsed, one year's purchase must be paid. (This is equivalent to allowing the lessee between 12 and 13 per cent. for his money.) This table, which was apparently drawn up by Newton for Babington's official use, continued to be employed by the College till 1700, when Bentley, on his appointment to the Mastership, introduced the 10 per cent. tables. The innovation, however, according to Vice-Master Walter, was unpalatable to the seniors and officers, whose ' greediness for present sealing money,' superadded to ' quarrels in the College,' compelled a return to the old system, and occasionally the granting of terms still more favourable to the tenant. On Dr. Robert Smith's succeeding to the Mastership in 1742, the 10 per cent. tables were introduced, and these were replaced in 1750 by 9 per cent. tables."

Mr. Edleston had the kindness to make a copy of this table, which I subjoin:—

" *Tabula redemptionalis ad reditus Collegij Ss. Trinitatis accommodata.*

	l.	*s.*	*d.*	*l.*	*s.*	*d.*	*l.*	*s.*	*d.*	*s.*	*d.*
	100	0	0	10	0	0	1	0	0	2	0
1	9	19	8	1	0	0	0	2	0	0	2
2	21	2	10	2	2	3	0	4	3	0	5
3	33	12	2	3	7	3	0	6	9	0	8
4	47	11	0	4	15	1	0	9	6	0	11
5	63	2	7	6	6	3	0	12	8	1	3
6	80	10	9	8	1	1	0	16	1	1	7
7	100	0	0	10	0	0	1	0	0	2	0
8	121	15	1	12	3	6	1	4	4	2	5
9	146	1	1	14	12	1	1	9	2	2	11
10	173	4	5	17	6	5	1	14	8	3	6
11	203	11	8	20	7	2	2	0	9	4	1
12	237	10	2	23	15	0	2	7	6	4	9
13	275	8	9	27	10	10	2	15	1	5	6
14	317	16	7	31	15	8	3	3	7	6	4
15	365	4	1	36	10	5	3	13	0	7	4
16	418	3	0	41	16	4	4	3	7	8	4
17	477	6	6	47	14	8	4	15	6	9	6
18	543	9	4	54	6	11	5	8	8	10	10
19	617	7	8	61	14	9	6	3	6	12	4
20	700	0	0	70	0	0	7	0	0	14	0

"Construitur hæc tabula ex hypothesi quod viginti anni septuplo reditus anni unius redimendi sint; et quod illorum viginti annorum septem annis elapsis, ut alij septem addantur et sic restituatur vicennium, reditus unius anni denuò solvi debeat. Columna sinistra continet annos redimendos ad restituendum vicennium, et reliquæ columnæ e regione continent pretia redimendi sive fines ad annuos reditus qui in fronte columnarum habentur.

" Ut si reditus annuatim sit 100*l.*, et anni 14 redimendi sint, in columna sub 100*l.* 0*s.* 0*d.* e regione 14 invenietur finis 317*l.* 16*s.* 7*d.*

" Quod si reditus sit 110*l.* 10*s.* 0*d.* et anni 12 redimendi sint, colligetur finis ex numeris qui sunt e regione 12 ad hunc modum. Nempe sub 100*l.* 0*s.* 0*d.* habetur 237*l.* 10*s.* 2*d.* finis pro reditu 100*l.* Sub 10*l.* 0*s.* 0*d.* habetur 23*l.* 15*s.* 0*d.* finis pro reditu 10*l.* Sub 1*l.* 0*s.* 0*d.* habetur 2*l.* 7*s.* 6*d.* cujus dimidium 1*l.* 3*s.* 9*d.* est finis pro reditu 10*s.* Et summa omnium 262*l.* 8*s.* 11*d.* est finis pro reditu toto.

" Eodem modo si reditus sit 237*l.* 12*s.* 6*d.*, et anni redimendi 15, consulendi erunt numeri e regione 15, et sumendum duplum numeri 365*l.* 4*s.* 1*d.*, hoc est 730*l.* 8*s.* 2*d.* pro reditu 200*l.*; triplum 36*l.* 10*s.* 5*d.*, hoc est 109*l.* 11*s.* 3*d.* pro reditu 30*l.*; septuplum 3*l.* 13*s.* 0*d.*, id est 25*l.* 11*s.* 0*d.* pro reditu 7*l.*; sextuplum 7*s.* 4*d.*, id est 2*l.* 4*s.* 0*d.* pro reditu 12*s.*, et ejusdem 7*s.* 4*d.* quarta pars hoc est 1*s.* 10*d.* pro reditu 6*d.* Atque summa omnium 867*l.* 16*s.* 3*d.* erit finis pro reditu toto.

" *Computus exempli secundi præcedentis ita se habet.*

| 237 | 10 | 2 |
| 23 | 15 | 0 |
1	3	9
262	8	11

" *Computus tertij sic.*

730	8	2
109	11	3
25	11	0
2	4	0
	1	10
867	16	3 "

The little ambiguity of expression, which I have corrected in [ ] in my quotation of Mr. Edleston's note, is, it will be observed, Newton's own doing. Seven years' purchase for twenty years gives 13·08 per cent., and one year's purchase for seven years lapsed gives 13·44 per cent.